

**A NEW GENUS AND SPECIES OF THE TRIBE ZOLINI FROM
SOUTHEASTERN AUSTRALIA (COLEOPTERA: CARABIDAE:
ZOLINI)**

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Abstract

Thayerella newtoni gen. n., sp. n., a new genus and species of the carabid tribe Zolini, is described from southern Victoria. A key is provided for the Australian genera of Zolini.

Introduction

Zolini (or Merizodini) is a small tribe of carabid beetles of the Trechinae lineage that has a decidedly southern distribution in southern South America, southern Australia, Tasmania, New Zealand and on some subantarctic islands. Four genera with 14 species have been recorded from Australia, namely the cave-inhabiting *Idacarabus* Lea, 1910 and the epigeal ground-living species of *Percodermus* Sloane, 1920, *Pterocyrtus* Sloane, 1920 and *Sloaneana* Csiki, 1933 (Sloane 1920, Moore *et al.* 1987, Baehr 2002, 2015, Lorenz 2005, Eberhardt and Giachino 2011).

Among borrowed material from the Australian National Insect Collection, Canberra, I detected a few specimens from Victoria that did not match any of the known Zolini genera. They are described below as a new species belonging to a new genus. A key is provided for the Australian genera of the tribe.

Methods

Standard methods are used in the taxonomic procedure. The habitus photograph was taken with a digital camera using ProgRes CapturePro 2.6 and AutoMontage and then worked with Corel Photo Paint 14. Measurements were taken using a stereo microscope with an ocular micrometer. Body length was measured from the apex of the labrum to the apex of the elytra, by addition of the lengths of head, prothorax and elytra; length of pronotum was measured along midline; length of elytra is a straight line from the most produced part of the humerus to the most produced part of the apex.

The types are in the Australian National Insect Collection, Canberra (ANIC) and in the working collection of the author at Zoologische Staatssammlung, München (CBM).

Genus *Thayerella* gen. n.

Type species: *Thayerella newtoni* sp. n., by monotypy.

Diagnosis. Genus of Zolini, by means of presence of a seta in the mandibular scrobe, terminal palpomere of both palpi conical, presence of pilosity on the penultimate palpomere of the maxillary palpus and crossed epipleura of the

elytra. The shape of the basal male tarsomeres of the protarsus is unknown, because only females are available. The genus is distinguished from other Australian Zolini by its convex, almost semicircular prothorax and short and laterally and dorsally convex elytra, the chaetotaxy of head and pronotum, absence of a submarginal carina on the pronotum and absence of a preapical submarginal carina on the elytra.

Description. Rather small, laterally and dorsally convex species; head with two supraorbital setae; clypeus with one elongate seta on each side; labrum six-setose, the lateral setae very elongate, the four median ones short, those in middle very short; mandible with an elongate seta in the scrobe; mentum with a distinct, sharply triangular tooth, with one elongate seta on either side; submentum with a single elongate seta on each side; glossa rather wide, apicad gently widened and transverse at apex, bisetose, setae elongate; paraglossa narrow, apically separated from glossa; lacinia with few very elongate teeth; apical palpomeres of both palpi elongate, conical, sparsely setose, in the maxillary palpus the penultimate palpomere also sparsely setose; antenna rather densely pilose from middle of 4th antennomere, but also the 2nd and 3rd antennomeres very sparsely setulose; frons with a deep, approximately triangular groove on each side close to the clypeal suture, with a shallow, oblique frontal furrow which almost attains the anterior supraorbital seta. Eye large but little protruded laterally.

Pronotum almost orbicular, dorsally convex, with evenly rounded basal angle; lateral margin with a single elongate seta slightly in front of middle.

Elytra short, somewhat oviform, dorsally convex; basal margin oblique, reaching the base of the 2nd stria; apex evenly rounded, with extremely shallow preapical sinuosity where the internal ridge distinctly crosses the lateral margin; dorsal surface near apex without an externally careniform submarginal plica; striation complete, all striae deep and coarsely punctate, reaching the apex, only in apical third impunctate but even deeper than in basal half; 1st stria at base out-turned to meet the 2nd stria; scutellary stria extremely short, just visible in front of the out-turned 1st stria; scutellary puncture and seta located at origin of the 2nd stria, seta elongate; 3rd interval with two setiferous punctures on either side; series of marginal punctures widely interrupted in middle.

Lower surface of prothorax impunctate; prosternum margined between the procoxae; mesepisternum with a dorsoventrad directed row of coarse punctures; metepisternum quadrate, with a few coarse punctures; abdomen impunctate; terminal sternum in the female six-punctate.

Legs rather short and robust; tarsi impilose on the dorsal surface; lower surface of the 5th tarsomeres asetose; claws elongate, glabrous.

Male genitalia unknown.

Female gonocoxite 2 fairly elongate, slightly curved, with one large dorsomedian ensiform seta, two large and elongate ventrolateral ensiform setae, and one elongate, subapical nematiform seta.

Etymology. The name is a patronym in honour of one of the collectors of the type species, Margaret Thayer of the Field Museum, Chicago.

Distribution. Known only from the Cape Otway area, extreme southern Victoria, Australia, the type locality of the single known species.

***Thayerella newtoni* sp. n.**

(Figs 1-3)

Types. *Holotype* ♀, VICTORIA: '38.39S 143.42E, Haines Junct. 525 m, 1.9 km W.on Turtons Track 809, 25Jan.-8Feb.1987, A. Newton & M. Thayer / wet scler. forest FMHD '87-215 Berl. leaf & log litter' (ANIC). *Paratypes*: 2 ♀♀, same data (ANIC, CBM). The latitude and longitude should be read as 38°39'S, 143°42'E.

Diagnosis. As for genus: easily recognized by the wide, yellow margins of pronotum and elytra, the laterally convex pronotum with almost rounded basal angle, and the oviform, convex elytra with complete striation and deeply impressed, coarsely punctate striae.

Description. Measurements. Length: 3.65-3.75 mm; width: 1.4-1.45 mm; ratio width/length of pronotum: 1.25-1.28; ratio width of pronotum/width of head: 1.54-1.58; ratio length/width of elytra: 1.52; ratio width of elytra/width of pronotum: 1.25-1.27.

Colour (Fig. 1). Black, very glossy. Pronotum and elytra with wide, conspicuous, well delimited dark yellow margin. In the pronotum the margin narrowly extends along the base, on the elytra the margin covers most of the base and almost meets at the apex. Apical margin of clypeus, labrum and basal half of mandibles dark red, palpi and antenna yellow, the four basal antennomeres very slightly darker. Femora yellow, tibiae and tarsi slightly darker, pale red to reddish piceous. Lower surface black, but epipleurae of pronotum and elytra bright yellow.

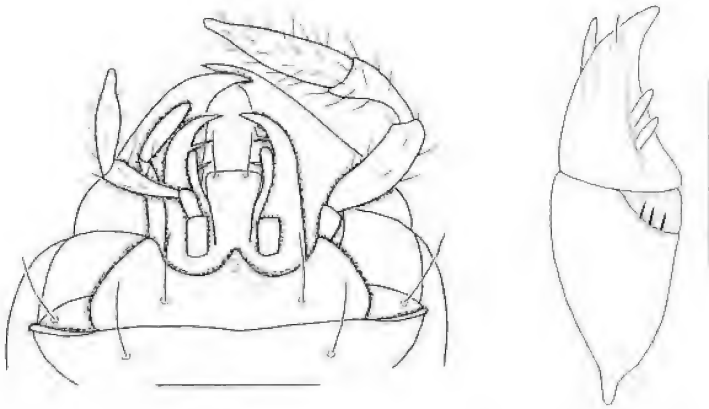
Head (Figs 1-2). Rather narrow in comparison with the prothorax. Frons convex. Eye large, though laterad but little protruded, orbit short, convex. Posterior orbital seta located at posterior margin of the eye. Clypeo-frontal suture distinct. Labrum rather elongate, with straight apex. Mandibles of moderate length, evenly curved, acute. Terminal palpomeres elongate, acute. Antenna rather short, not attaining the base of the pronotum, median antennomeres *ca* 1.2-1.3 times as long as wide. Labrum with distinct, isodiametric microreticulation, rest of surface without microreticulation, very glossy, with very sparse, extremely fine punctures which are only visible at very high magnification.

Pronotum (Fig. 1). Wide, laterally markedly convex, almost orbicular. Apex about as wide as base, very slightly concave, anterior angles slightly

produced, obtuse. Lateral margins almost evenly rounded, widest slightly in front of middle. Basal angle completely rounded, base very slightly convex. Apex feebly bordered but border interrupted in middle, lateral margins narrowly, strongly bordered, border not widened apicad. Base only bordered near basal angle. Lateral channel narrow. Disk evenly convex. Median line distinct, well impressed, almost reaching base, but anteriorly only reaching the anterior transverse sulcus that is present only in middle. Prebasal sulcus absent. Basal grooves barely evident. The anterior marginal seta situated slightly in front of middle at the widest diameter, the posterior marginal seta absent. Surface in basal half with some irregular, transverse striae, without microreticulation, very glossy. Base in middle with some fairly coarse punctures.



Fig. 1. *Thayerella newtoni* gen. n., sp. n. Habitus. Body length: 3.75 mm.



Figs 2-3. *Thayerella newtoni* gen. n., sp. n.: (2) lower surface of head. Scale bar: 0.25 mm; (3) female gonocoxites 1 and 2. Scale bar: 0.1 mm.

Elytra (Fig. 1). Rather short and wide, somewhat oviform, widest about at middle, dorsally convex. Base comparatively wide. Humerus widely rounded, lateral margins moderately convex, but with a shallow sinuation in basal third. Marginal channel narrow throughout. Epipleurae distinctly crossed near apex. All striae coarsely punctate in basal two thirds, towards base impunctate but still deeply impressed, intervals convex. Discal punctures situated in middle of 3rd interval, slightly behind middle and about at apical fourth. Marginal series consisting of five setiferous punctures in the basal group and six in the apical group, both groups widely separated. Also with a setiferous puncture near apex at the end of the 3rd stria. Surface without microreticulation, very glossy, but intervals with a series of faint punctures. Metathoracic wings almost completely reduced.

Lower surface. Whole lower surface impilose and without microreticulation, very glossy.

Legs. Shape and pilosity of the male protarsus unknown.

Male genitalia. Unknown.

Female gonocoxites (Fig. 3). Gonocoxite 1 rather elongate, with 3 short setae at the lateral part of the ventral apical margin. Gonocoxite 2 fairly elongate, narrow, slightly curved, with acute apex; with a very elongate dorsomedian ensiform seta located about at middle, two large and elongate ventrolateral ensiform seta in basal half, and one fairly elongate, subapical nematiform seta near apex that originates in an oblong pit.

Variation. Slight variation noted only in relative width of pronotum.

Etymology. The name is a patronym in honour of one of the collectors of the type species, Alfred Newton of the Field Museum, Chicago.

Distribution. Cape Otway area, extreme southern part of Victoria. Known only from the type locality.

Collecting circumstances. Sieved from 'leaf and log litter' in wet sclerophyll forest.

Key to the genera of Zolini recorded from Australia

- 1 Eye very small, depressed; prothorax narrow, without submarginal carina; legs unusually slender and elongate [Tas] *Idacarabus* Lea, 1910
- Eye of normal size, laterad more or less protruded; prothorax wider, with or without submarginal carina, but if latter, prothorax very wide and almost semicircular; legs not very slender and elongate 2
- 2 Head with two supraorbital setae 3
- Head with a single supraorbital seta [Tas, Vic] .. *Pterocyrtus* Sloane, 1920
- 3 Pronotum without a submarginal carina and without the posterior marginal seta [s. Vic] *Thayerella* **gen. n.**
- Pronotum with a submarginal carina; when body oval-shaped, the posterior marginal seta present; when body rather parallel-sided, the posterior marginal seta absent 4
- 4 Posterior marginal seta of pronotum present; body oval-shaped [Tas, Vic, NSW, s. Qld] *Sloaneana* Csiki, 1933
- Posterior marginal seta of pronotum absent; body rather parallel-sided [Tas] *Percodermus* Sloane, 1920

Remarks

The new species adds a morphologically quite aberrant genus to the Australian Zolini and renders this tribe even more diverse in its external morphology and chaetotaxy. Actually, the Australian Zolini are not easily recognized by use of body shape, surface structure or colouration, but a number of special character states are needed to place genera in this tribe, *e.g.* chaetotaxy of the head, setosity of the palpi and structure of the male protarsus. This high grade of morphological diversity may demonstrate the rather ancient origin of the tribe and, at the same time, suggests the loss of connecting links between the still existing genera.

The new species was collected by sieving litter in fairly dense forest which is the common habitat of most Australian Zolini species, except the cave-dwelling species of the genus *Idacarabus* Lea. The Cape Otway area is well known for a number of cool to cold-adapted carabid species of southern origin, some of which have their nearest relatives in similar environments in Tasmania: *e.g.* in Migadopini, amblyteline Psydrini and Agonicini.

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